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21M.606 Introduction to Stagecraft
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Fake Window

For my final project, I intend to make a light box that is designed to look like a window, such that it could show the "outside" from a house on stage. The lightbox will have mount points to attach either a picture frame or a window frame, for appearances, while the lightbox itself will be 13"*19"*2", with LED internal lights and two 1/4" glass panes (17 1/2"*11 1/2") for sandwiching the image. Foreseen problems include the attachment point between the decorative frame and the functional light box, as well as the method for holding the glass panes in place, but non permanently, so that the contained image can be changed.

The expected materials for lightbox and the decorative frame construction are listed in the table below, and the layout for each piece is diagrammed on the attached page.

Item	Type	Quantity/Size
<i>Lightbox Materials</i>		
Wood	Pine	65"*1"*1" and 13"*19"*1/4" (actual size)
Screws	Robertson Flat Head screws	24 size 7 screws and 10 Size 11 screws
LED light cord	1/2" Diameter	11'
Glass Panes	Undetermined	17 1/2"*11 1/2"
Casement Fastener Catches	Undetermined	<1/2"*1"
Washers	Plastic	Four 1" Diameter
Nuts and Bolts	Hex head bolt & 12 point washer	Four Pairs, 1/4" Size (Nominal), 1 1/4" (Actual) Length
Aluminum Foil	Sheets	3'*1'
Wood Sealer	Undetermined	Undetermined
<i>Frame Materials</i>		
Wood	Pine	1"*2" (Nominal) * 135" (Actual)
V-Nails	Undetermined	Twenty of an Undetermined Size
Wood Stain	Undetermined	Undetermined

The complete project will have three pieces. The main lightbox, which will be purely functional, and two decorative frames that can be mounted on the main piece. All three pieces will be stained or sealed to protect the wood over the long term.

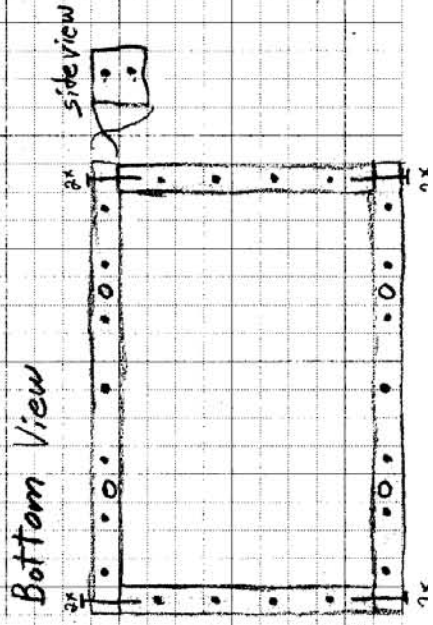
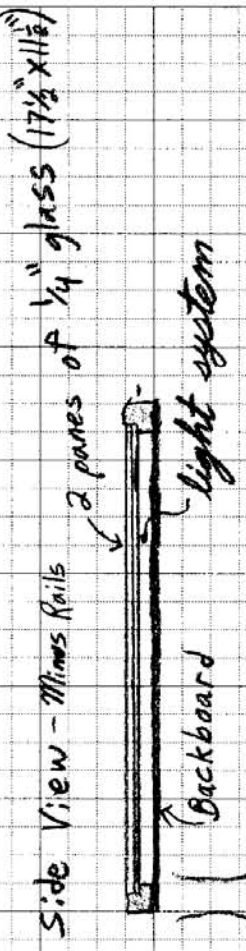
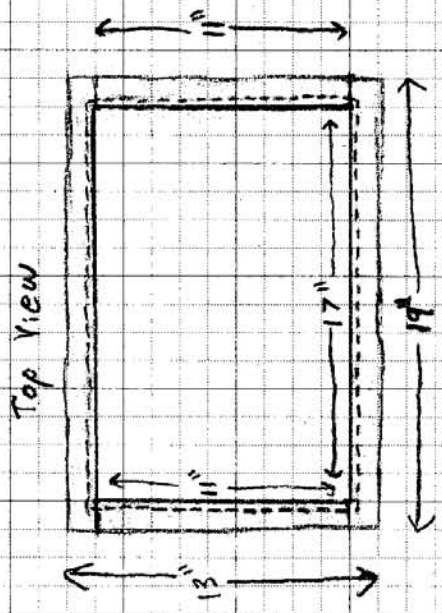
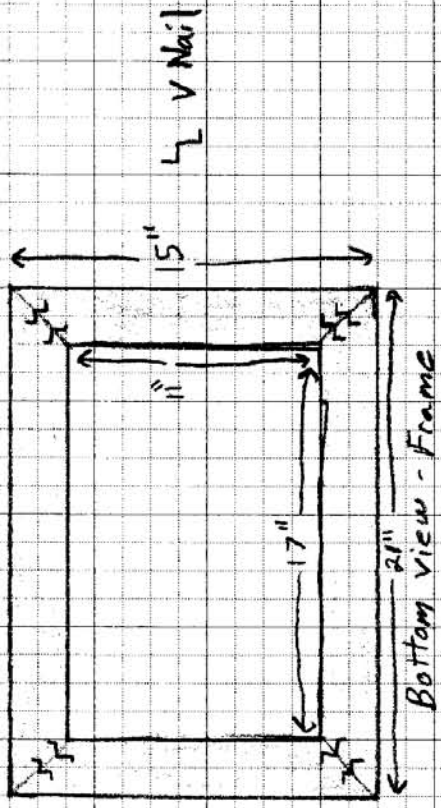
There are several problems which have arisen during the design for this item, which will be addressed. Firstly, the glass will be in danger of cracking in the middle if only supported on the edges. In order to avoid this, the lightbox is designed such that the LED light cord is flush against the lower glass pane and also against the baseboard, which will provide support for the glass pane in the middle of the lightbox. Secondly, due the height and width of the rails and toggles, there is a danger of splitting from the screws. This will be avoided by predrilling holes for all the screws. Third, the LED

light cord may not dilute the light enough and may necessitate etching the glass with acid to provide diffuse light. Also, in order to more efficiently use the available light, aluminum foil will be placed against the wooden interior of the lightbox to reflect as much light as possible through the glass. Lastly, in order to avoid cracking the glass panes while still adequately securing them, plastic washers will be used in order to provide enough give. One additional problem caused by using nuts and bolts with plastic washers is that a gap will have to be cut into the decorative frames to allow them to sit flush against the lightbox.

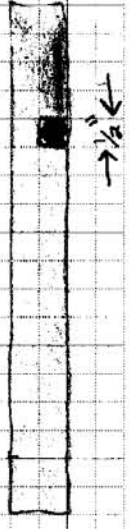
The expected time line for the project is listed in the table below. Work hours are expected to be 9 to 12 on Wednesday mornings and 2 to 5 on Friday afternoons.

Task	Expected Completion Date
Final Project Proposal	5-3-09
Midterm Presentation	12-3-09
Materials Procurement	18-3-09
Measuring and Confirming Material Sizes	20-3-09
Cutting Wood to Appropriate Sizes	27-3-09
Etch Glass if Necessary, Begin Lightbox Assembly	3-4-09
Finish Lightbox Assembly	10-4-09
Assemble Both Frames	17-4-09
Attach Mounting Points and Test Accuracy of Construction	24-4-09
Stain or Seal as Appropriate	29-4-09
Present Final Project	14-5-09

By leaving several weeks available before the final presentation, there will be additional time available if necessary in order to deal with any delays or unforeseen problems.



Side view of toggle showing cut for power cord



- Vertical screw through Page
- T Horizontal screw through rail & toggle
- O Nut & Bolt

will use pre-drilling to prevent splitting